

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An integrated coal gasification combined cycle power generator (IGCC) comprising:

a coal gasification system for producing a combustible gas from coal in a coal gasification cycle, wherein said coal gasification system supplies said combustible gas to a gas turbine system;

said gas turbine system comprises a gas turbine for performing expansion work using said combustible gas, wherein said gas turbine supplies exhaust gas to a heat recovery system;

said heat recovery system performs heat exchange, wherein said heat recovery system uses said exhaust gas supplied from said gas turbine as a heat source, and supplies steam generated in the heat exchange to a steam turbine system;

said steam turbine system performs expansion work, said steam turbine system comprising a condenser to condense said steam from said heat recovery system into water, said water being supplied to a heat exchanger in said coal gasification system so that said water is heated to steam, and wherein at least a portion of said steam from said heat exchanger is supplied to at least one high-temperature section of said gas turbine which is at a temperature higher than a temperature of said steam from said heat exchanger, so as to cool said at least one high temperature section of said gas turbine, and

wherein the at least a portion of said steam, after having cooled said at least one high-temperature section of said gas turbine, is collected and provided to a steam turbine of said steam turbine system, to be used, along with said steam output by said heat recovery system, to generate steam in a steam cycle, and

wherein a higher-temperature steam is produced after cooling said at least one high-temperature section of the gas turbine system with said steam from said heat exchanger, said higher-temperature steam is recovered from said at least one high-temperature section of the gas turbine system and supplied to said steam turbine in said steam turbine system.

2. (Canceled)

3. (Currently Amended) An IGCC according to claim [[2]] 1, wherein said more than one high-temperature section of the gas turbine system is at least said gas turbine and a gas turbine combustor,

wherein a first portion of said steam from said heat exchanger is directly supplied from said heat exchanger in said coal gasification system to said gas turbine, and

wherein a second portion of said steam from said heat exchanger is first sent through a gas cleanup unit of said coal gasification system and then on to said gas turbine compressor.

4. (Previously Presented) An IGCC according to claim 3, further comprising a gasification substance producing unit in said coal gasification system for producing an oxygen gas and a nitrogen gas from air, said gasification substance producing unit supplying said oxygen gas to a coal gasification unit in said coal gasification system, wherein:

said coal gasification unit receives said oxygen gas from said gasification substance producing unit and receives coal from a coal supplying unit;

said coal gasification unit burns the coal from said coal supplying unit with the oxygen gas from said gasification substance supplying unit, producing said combustible gas and introducing said combustible gas into a cooling unit in said coal gasification system;

said cooling unit cools said combustible gas from said coal gasification unit, said cooling unit being in fluid connection with a gas cleanup unit in said coal gasification system; and

said gas cleanup unit removes impurities from said combustible gas.

5. (Previously Presented) An IGCC according to claim 4, wherein said coal supplying unit employs the nitrogen gas from said gasification substance producing unit.

6. (Previously Presented) An IGCC according to claim 5, wherein the nitrogen gas produced in said gasification substance producing unit is supplied to said gas turbine combustor, the nitrogen gas combined therein with said combustible gas.

7. (Previously Presented) An IGCC according to claim 6, wherein said gas turbine system comprises an air compressor that supplies air to said at least one of said more than one high-temperature section of the gas turbine system for the purpose of cooling said at least one high-temperature section, producing a higher-temperature air, and wherein

said higher-temperature air is recovered after cooling said at least one of said more than one high-temperature section and supplied to said heat recovery system.

8. (Original) An IGCC according to claim 5, further comprising:
a detector for detecting a calorific value of said combustible gas from said gas cleanup unit; and

a controlling for controlling the flow rate of said combustible gas based on said calorific value.

9. (Previously Presented) An IGCC according to claim 5, further comprising:

a detector for detecting a calorific value of said combustible gas from said gas cleanup unit; and

a controller for controlling a flow rate of pressurized air from an air compressor, wherein said pressurized air is supplied to said gasification substance producing unit based on said calorific value.

10. (Currently Amended) An integrated coal gasification cycle power generator IGCC according to claim 1, (IGCC) comprising:

a coal gasification system for producing a combustible gas from coal in a coal gasification cycle, wherein said coal gasification system supplies said combustible gas to a gas turbine system;

said gas turbine system comprises a gas turbine for performing expansion work using said combustible gas, wherein said gas turbine supplies exhaust gas to a heat recovery system;

said heat recovery system performs heat exchange, wherein said heat recovery system uses said exhaust gas supplied from said gas turbine as a heat source, and supplies steam generated in the heat exchange to a steam turbine system;

said steam turbine system performs expansion work, said steam turbine system comprising a condenser to condense said steam from said heat recovery system into water, said water being supplied to a heat exchanger in said coal gasification system so that said water is heated to steam, and wherein at least a portion of said steam from said heat exchanger is supplied to at least one high-temperature section of said gas turbine which is at a temperature higher than a temperature of said steam from said heat exchanger, so as to cool said at least one high temperature section of said gas turbine,

wherein the at least a portion of said steam, after having cooled said at least one high-temperature section of said gas turbine, is collected and provided to a steam turbine of said steam turbine system, to be used, along with said steam output by said heat recovery system, to generate steam in a steam cycle,

wherein a higher-temperature steam is produced after cooling said at least one high-temperature section of said gas turbine with said steam from said heat exchanger, and

wherein said higher-temperature steam is recovered from said at least one high-temperature section of said gas turbine and supplied to said heat recovery system.

11. (Canceled)

12. (Previously Presented) An IGCC according to claim 10, further comprising a gasification substance producing unit in said coal gasification system for producing an oxygen gas and a nitrogen gas from air, said gasification substance producing unit being adapted to supply said oxygen gas to a coal gasification unit, wherein

said coal gasification unit is adapted to receive said oxygen gas from said gasification substance producing unit and to receive coal from a coal supplying unit,

said coal gasification unit burns the coal from said coal supplying unit with the oxygen gas from said gasification substance supplying unit, producing a combustible gas and introducing said combustible gas into a cooling unit,

said cooling unit cools the combustible gas from said coal gasification unit, said cooling unit being in fluid connection with a gas cleanup unit, and

said gas cleanup unit removes impurities from said combustible gas.

13. (Previously Presented) An IGCC according to claim 12, wherein said coal supplying unit uses the nitrogen gas from said gasification substance producing unit.

14. (Previously Presented) An IGCC according to claim 10, wherein air generated in an air compressor in said gas turbine system is supplied to at least one high-temperature section of said gas turbine for the purpose of cooling said at least one high-temperature section, producing a higher-temperature air,

said higher-temperature air is recovered after cooling said at least one high-temperature section and supplied to said heat recovery system.

15. (Previously Presented) An IGCC according to claim 10, wherein said higher-temperature steam is recovered from said at least one high-temperature section of said gas turbine and supplied to said heat recovery system and to said steam turbine.

16. – 32. (Canceled)

33. (Currently Amended) An integrated coal gasification combined cycle power generator (IGCC) comprising:

a coal gasification system for producing a combustible gas from coal in a coal gasification cycle, wherein said coal gasification system supplies said combustible gas to a gas turbine system;

said gas turbine system comprises a gas turbine for performing expansion work using said combustible gas, wherein said gas turbine supplies exhaust gas to a heat recovery system;

said heat recovery system performs heat exchange, wherein said heat recovery system uses said exhaust gas supplied from said gas turbine as a heat source, and supplies steam generated in the heat exchange to a steam turbine system;

said steam turbine system performs expansion work, said steam turbine system comprising a condenser to condense said steam from said heat recovery system into water, said water being supplied to a heat exchanger in said coal gasification system so that said water is heated to steam, wherein at least a portion of said steam from said heat exchanger is supplied to at least one high-temperature section of said gas turbine which is at a temperature higher than a temperature of said steam from said heat exchanger so as to cool said at least one high-temperature section, and wherein high-pressure from an air compressor in said gas turbine system is supplied to cool said at least one high-temperature

section of said gas turbine if steam is not yet generated by said heat exchanger in said coal gasification system, and

wherein the at least a portion of said steam, after having cooled said at least one high-temperature section of said gas turbine, is collected and provided to a steam turbine of said steam turbine system, to be used, along with said steam output by said heat recovery system, to generate steam in a steam cycle, and

wherein said at least one high-temperature section of said gas turbine includes at least one of:

a gas turbine nozzle blade;

a gas turbine rotor blade; and

a gas turbine rotor.

34. (Previously Presented) An IGCC according to claim 33, wherein a higher-temperature steam is produced after cooling said at least one high-temperature section of said gas turbine with said steam from said heat exchanger, said higher-temperature steam is recovered from said at least one high-temperature section of said gas turbine and supplied to said steam turbine in said steam turbine system.

35. (Canceled)

36. (Previously Added) An IGCC according to claim 35, further comprising a gasification substance producing unit in said coal gasification system for producing an oxygen gas and a nitrogen gas from air, said gasification substance producing unit supplying said oxygen gas to a coal gasification unit in said coal gasification system, wherein:

said coal gasification unit receives said oxygen gas from said gasification substance producing unit and receives coal from a coal supplying unit;

said coal gasification unit burns the coal from said coal supplying unit with the oxygen gas from said gasification substance supplying unit, producing

said combustible gas and introducing said combustible gas into a cooling unit in said coal gasification system;

said cooling unit cools said combustible gas from said coal gasification unit, said cooling unit being in fluid connection with a gas cleanup unit in said coal gasification system; and

said gas cleanup unit removes impurities from said combustible gas.

37. (Previously Added) An IGCC according to claim 36, wherein said coal supplying unit employs nitrogen gas from said gasification substance producing unit.

38. (Previously Added) An IGCC according to claim 37, wherein the nitrogen gas produced in said gasification substance producing unit is supplied to said gas turbine combustor, said nitrogen gas combined therein with said combustible gas.

39. (Previously Presented) An IGCC according to claim 38, wherein the air compressor in said gas turbine system supplies air to said at least one high temperature section of said gas turbine for the purpose of cooling said at least one high-temperature section, producing a higher-temperature air, and wherein

said higher-temperature air is recovered after cooling said at least one high-temperature section and supplied to said heat recovery system.

40. (Previously Added) An IGCC according to claim 37, further comprising:

a detector for detecting a calorific value of said combustible gas from said gas cleanup unit; and

a controller for controlling a flow rate of said combustible gas based on said calorific value.

41. (Previously Added) An IGCC according to claim 37, further comprising:

a detector for detecting a calorific value of said combustible gas from said gas cleanup unit; and

a controller for controlling the flow rate of pressurized air from an air compressor supplied to said gasification substance producing unit based on said calorific value.

42. (Previously Presented) An IGCC according to claim 33, wherein a higher-temperature steam is produced after cooling said at least one high-temperature section of said gas turbine with said steam from said heat exchanger, and wherein

said higher-temperature steam is recovered from said at least one high-temperature section of said gas turbine and supplied to said heat recovery system.

43. (Canceled)

44. (Previously Presented) An IGCC according to claim 43, further comprising a gasification substance producing unit in said coal gasification system for producing an oxygen gas and a nitrogen gas from air, said gasification substance producing unit supplying said oxygen gas to a coal gasification unit in said coal gasification system, wherein

said coal gasification unit receives said oxygen gas from said gasification substance producing unit and receives coal from a coal supplying unit,

said coal gasification unit burns the coal from said coal supplying unit with the oxygen gas from said gasification substance supplying unit, producing said combustible gas and introducing said combustible gas into a cooling unit in said coal gasification system,

said cooling unit cools the combustible gas from said coal gasification unit, said cooling unit being in fluid connection with a gas cleanup unit in said coal gasification system, and

said gas cleanup unit removes impurities from said combustible gas.

45. (Previously Added) An IGCC according to claim 44, wherein said coal supplying unit uses nitrogen gas from said gasification substance producing unit.

46. (Previously Presented) An IGCC according to claim 42, wherein air generated in an air compressor in said gas turbine system is supplied to said at least one high temperature section of said gas turbine for the purpose of cooling said at least one high-temperature section of said gas turbine, producing a higher-temperature air, said higher-temperature air is recovered after cooling said at least one high-temperature section of said gas turbine and supplied to said heat recovery system.

47. (Previously Presented) An IGCC according to claim 42, wherein said higher-temperature steam is recovered from said at least one high-temperature section of said gas turbine and supplied to said heat recovery system and to said steam turbine.

48. (Currently Amended) An integrated coal gasification cycle power generator IGCC according to claim 1, (IGCC) comprising:

a coal gasification system for producing a combustible gas from coal in a coal gasification cycle, wherein said coal gasification system supplies said combustible gas to a gas turbine system;

said gas turbine system comprises a gas turbine for performing expansion work using said combustible gas, wherein said gas turbine supplies exhaust gas to a heat recovery system;

said heat recovery system performs heat exchange, wherein said heat recovery system uses said exhaust gas supplied from said gas turbine as a heat source, and supplies steam generated in the heat exchange to a steam turbine system;

said steam turbine system performs expansion work, said steam turbine system comprising a condenser to condense said steam from said heat recovery system into water, said water being supplied to a heat exchanger in said coal gasification system so that said water is heated to steam, and wherein at least a portion of said steam from said heat exchanger is supplied to at least one high-temperature section of said gas turbine which is at a temperature higher than a temperature of said steam from said heat exchanger, so as to cool said at least one high temperature section of said gas turbine,

wherein the at least a portion of said steam, after having cooled said at least one high-temperature section of said gas turbine, is collected and provided to a steam turbine of said steam turbine system, to be used, along with said steam output by said heat recovery system, to generate steam in a steam cycle, and

wherein said at least one high-temperature section of said gas turbine includes at least one of:

- a gas turbine nozzle blade;
- a gas turbine rotor blade; and
- a gas turbine rotor.

49. (Canceled)

50. (Currently Amended) An IGCC according to claim 33, further comprising:

means for determining when steam is being generated by the heat exchanger; and

means for providing the high-pressure air from said air compressor in said gas turbine system to cool said at least one high-temperature section of said gas turbine,

wherein said means for providing only provides the high-pressure air to said at least one high-temperature section of said gas turbine when ~~steam is not generated by said heat exchanger in said coal gasification system~~ the means for determining determines that no steam is being generated by the heat exchanger.

51. (Newly Added) An IGCC according to claim 50, wherein the high-pressure air from said air compressor is output directly to said at least one high-temperature section of said gas turbine, without being provided to any other components in a path from said air compressor to said gas turbine.